Q1.
Which pipette type is good for dispensing predetermined volumes, as the volume is read directly and the meniscus is read once only, possibly reducing reading errors.
A: Type 2

Q2.
Is a volumetric (bulb) pipette always more accurate than a graduated pipette?
A: Usually, but a 2 ml graduated pipette is same accuracy as a 2 ml serological pipette and a 1 ml volumetric pipette is actually less accurate than a 1 ml A grade graduated pipette. This is because these volumetric pipettes have a meniscus setting position of the same diameter as the body of a regular graduated pipette. Larger volume volumetric pipettes have narrower meniscus setting points, which reduce the volumetric inaccuracies when the glassware is calibrated during manufacture. Also, in use, the narrow reading point reduces the severity of meniscus reading errors, thereby delivering greater accuracy and precision.

Q3. What is the point of negative graduations on a pipette?
A: Negative graduations provide Type 2 and Type 3 pipettes (the types with the graduations finishing above the jet area) with greater versatility of use. The negative graduations enable a freehand titration to be performed without the risk of the end point being in 'no man's land' where there are no graduations at the jet area. In larger plastic pipettes the negative graduations are sometimes used to extend the volume range of the pipette.

Q4.You issue beautifully accurate pipettes but your students get mediocre results – who is to blame?
A: The industrial designers! The real difficulty with pipette use lies in the inadequate design of the traditional controlling devices. Leaks are the main problem and are inherent in the design of controlling and filling devices. A leaking or awkward control device makes the user tense and prone to making rushed readings or inadvertently over – dispensing. Unfortunately a good controller looks just the same a leaky one!
The aim of the new diji Syrette device is to remove the handling problems associated with fillers and controllers so that the user can make readings and dispense in a relaxed fashion.

Q5.How much would it cost to virtually eliminate all pipetting and buretting dangers in you lab.?

A: Chemistry pipetting syringes are designed to solve the common safety problems in liquid handling, like leaks, pipettes falling out of controllers, and glass injuries. For a science class of thirty students sharing equipment in groups of three, ten pipetting syringes would cost $AU325. The initial outlay is rapidly recouped through markedly reduced equipment replacement costs and hidden savings in reduced set up and washing time and more productive classes.

Q6.What is the most common laboratory injury-causing accident?
A: Glass sharp injuries while washing and handling glassware. Pipettes breaking while being loaded into controllers cause twenty percent of laboratory glass injuries.

Q7. Easier to clean; Pipette, Burette, or Syrette?
A: The Syrette is easier to clean for the following reasons:
The piston action of the seal running on the walls of the pipette enables thorough removal of chemicals with minimal use of water and energy. This is very quick to do and can therefore be conveniently performed by the user when finished with the Syrette (without getting their hands wet). Similarly, preconditioning a Syrette is also very quickly and safely performed - much more efficiently than a pipette or a burette.
Syrettes can also be cleaned conventionally by removing the 'pipette' section. Burettas, being very compact and robust, are much easier to handle and clean than traditional burettes. Additionally there are no valves to keep clean

Q8.Do you need every size of diji to cover the full volume range 1 to 25 ml.?
A: No. diji will deliver equivalent results when used outside its nominal volume range. For example, a 10 ml diji when filled twice to deliver a 20 ml aliquot will deliver the same results as a 20 ml A grade volumetric pipette.
The following results were returned from one of the world's largest brewing companies. Table 2 shows a 10 ml diji Buretta being successfully tested when used to dispense 2 ml., and Table 4 shows a 25 ml diji Buretta being successfully tested when used to dispense 5 ml aliquots.

TABLE 2: 10ml "Diji Buretta" (20%= 2ml)

Test	Weight (g)		Weight Result (g)	Volume (uL)	Accuracy Check (%)
	W_i	W_f			
1	0	2.0069	2.0069	2.0133	0.67
2	0	1.9935	1.9935	1.9999	0.01

3	0	1.9941	1.9941	2.0005	0.02
4	0	1.9992	1.9992	2.0056	0.28
5	0	1.9927	1.9927	1.9991	0.05
6	0	1.9959	1.9959	2.0023	0.11
7	0	2.0010	2.0010	2.0074	0.37
8	0	2.0014	2.0014	2.0078	0.39
9	0	1.9963	1.9963	2.0027	0.13
10	0	2.0018	2.0018	2.0082	0.41
Blank	0	0	0.0000	0.0000	
		Average	1.9983	2.0047	**ACCEPTABLE**

TABLE 3: 25ml "Diji Buretta" (100%=25ml)

Test	Weight (g)		Weight Result (g)	Volume (mL)	Accuracy Check (%)
	W_i	W_f			
1	0	24.8945	24.8945	24.9742	0.10
2	0	24.8985	24.8985	24.9782	0.09
3	0	24.9984	24.9984	25.0784	0.31
4	0	24.9433	24.9433	25.0231	0.09
5	0	24.849	24.8490	24.9285	0.29
6	0	24.8966	24.8966	24.9763	0.09
7	0	24.9005	24.9005	24.9802	0.08
8	0	24.911	24.9110	24.9907	0.04
9	0	24.924	24.9240	25.0038	0.02
10	0	24.9298	24.9298	25.0096	0.04
Blank	0	0	0.0000	0.0000	
		Average	24.9146	24.9943	**ACCEPTABLE**

TABLE 4: 25ml "Diji Buretta" (20%=5ml)

Test	Weight (g)		Weight Result (g)	Volume (uL)	Accuracy Check (%)
	W_i	W_f			
1	0	4.9741	4.9741	4.9900	0.20
2	0	4.9753	4.9753	4.9912	0.18
3	0	5.0050	5.0050	5.0210	0.42
4	0	4.9906	4.9906	5.0066	0.13
5	0	5.0094	5.0094	5.0254	0.51
6	0	4.9951	4.9951	5.0111	0.22
7	0	5.0163	5.0163	5.0324	0.65
8	0	4.9971	4.9971	5.0131	0.26
9	0	4.9940	4.9940	5.0100	0.20
10	0	5.0044	5.0044	5.0204	0.41
Blank	0	0	0.0000	0.0000	
		Average	4.9961	5.0121	**ACCEPTABLE**

The same will hold true for the smaller sizes, e.g. a 5 ml diji instead of a 2 ml pipette will be good for dispensing 2 ml .

Q9.You dispense 7.5 ml and the room temperature is 26℃. Do you need to adjust for the high room temperature?

Cont.

A: No. Adjustments for the room temperature are made *only* when checking the volumetric accuracy of the instrument. A pipette will always discharge the same volume regardless of the temperature.
As we cannot check the accuracy of a pipette by directly measuring the unvarying discharged *volume* (our eyes are not that good) we have to do it by weight, which unfortunately does vary. For example a 10 ml pipette, marked “at 20℃”, will not deliver 10 gms of water at 20℃. Water is close to 1cc = 1 gm @ 20℃- but not exactly. So no matter what the temperature when checking the device the pipette delivery in gms must be modified and then converted to ml..